

## **RAW SEQUENCE LISTING**

**The Biotechnology Systems Branch of the Scientific and Technical Information Center (STIC) no errors detected.**

Application Serial Number: 10/588, 445  
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IFWP

## RAW SEQUENCE LISTING

PATENT APPLICATION: US/10/588,445

DATE: 08/17/2006

TIME: 15:22:17

Input Set : A:\00952-04,Herr-Paint Seq. Listing.U.S.ST25.txt  
 Output Set: N:\CRF4\08172006\J588445.raw

3 <110> APPLICANT: University of Virginia Patent Foundation  
 4 Gilmer, Linda  
 5 Mandal, Arabinda  
 6 Wolkowicz, Michael  
 7 Klotz, Kenneth  
 8 Herr, John  
 10 <120> TITLE OF INVENTION: Compositions and Methods for Identifying and Isolation Sperm  
 for  
 11 Forensic Applications  
 13 <130> FILE REFERENCE: 00952-04  
 C--> 15 <140> CURRENT APPLICATION NUMBER: US/10/588,445  
 C--> 15 <141> CURRENT FILING DATE: 2006-08-04  
 15 <150> PRIOR APPLICATION NUMBER: 60/542,499  
 16 <151> PRIOR FILING DATE: 2004-02-06  
 18 <150> PRIOR APPLICATION NUMBER: PCT/US2005/003910  
 19 <151> PRIOR FILING DATE: 2005-02-07  
 21 <150> PRIOR APPLICATION NUMBER: 60/581,945  
 22 <151> PRIOR FILING DATE: 2004-06-22  
 24 <160> NUMBER OF SEQ ID NOS: 6  
 26 <170> SOFTWARE: PatentIn version 3.3  
 28 <210> SEQ ID NO: 1  
 29 <211> LENGTH: 285  
 30 <212> TYPE: PRT  
 31 <213> ORGANISM: Homo sapiens  
 33 <400> SEQUENCE: 1  
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 36 1 5 10 15  
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 40 20 25 30  
 43 Gln Thr Ser Val Gln Gln Leu Pro Gly Glu Phe Phe Ser Leu Glu Asn  
 44 35 40 45  
 47 Pro Ser Asp Ala Glu Ala Leu Tyr Glu Thr Ser Ser Gly Leu Asn Thr  
 48 50 55 60  
 51 Leu Ser Glu His Gly Ser Ser Glu His Gly Ser Ser Lys His Thr Val  
 52 65 70 75 80  
 55 Ala Glu His Thr Ser Gly Glu His Ala Glu Ser Glu His Ala Ser Gly  
 56 85 90 95  
 59 Glu Pro Ala Ala Thr Glu His Ala Glu Gly Glu His Thr Val Gly Glu  
 60 100 105 110  
 63 Gln Pro Ser Gly Glu Gln Pro Ser Gly Glu His Leu Ser Gly Glu Gln  
 64 115 120 125  
 67 Pro Leu Ser Glu Leu Glu Ser Gly Glu Gln Pro Ser Asp Glu Gln Pro  
 68 130 135 140  
 71 Ser Gly Glu His Gly Ser Gly Glu Gln Pro Ser Gly Glu Gln Ala Ser

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 76 165 170 175  
 79 Glu Gln Ser Leu Gly Glu His Ala Leu Ser Glu Lys Pro Ser Gly Glu  
 80 180 185 190  
 83 Gln Ala Ser Gly Ala Pro Ile Ser Ser Thr Ser Thr Gly Thr Ile Leu  
 84 195 200 205  
 87 Asn Cys Tyr Thr Cys Ala Tyr Met Asn Asp Gln Gly Lys Cys Leu Arg  
 88 210 215 220  
 91 Gly Glu Gly Thr Cys Ile Thr Gln Asn Ser Gln Gln Cys Met Leu Lys  
 92 225 230 235 240  
 95 Lys Ile Phe Glu Gly Lys Leu Gln Phe Met Val Gln Gly Cys Glu  
 96 245 250 255  
 99 Asn Met Cys Pro Ser Met Asn Leu Phe Ser His Gly Thr Arg Met Gln  
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 118 Leu Leu Glu Gly Ile Ser Arg Ala Val Leu Lys Thr Asn Pro Ser Asn  
 119 20 25 30  
 122 Ile Asn Gln Phe Ala Ala Ala Tyr Phe Gln Glu Leu Thr Met Tyr Arg  
 123 35 40 45  
 126 Gly Asn Thr Thr Met Asp Ile Lys Asp Leu Val Lys Gln Phe His Gln  
 127 50 55 60  
 130 Ile Lys Val Glu Lys Trp Ser Glu Gly Thr Thr Pro Gln Lys Lys Leu  
 131 65 70 75 80  
 134 Glu Cys Leu Lys Glu Pro Gly Lys Thr Ser Val Glu Ser Lys Val Pro  
 135 85 90 95  
 138 Thr Gln Met Glu Lys Ser Thr Asp Thr Asp Glu Asp Asn Val Thr Arg  
 139 100 105 110  
 142 Thr Glu Tyr Ser Asp Lys Thr Thr Gln Phe Pro Ser Val Tyr Ala Val  
 143 115 120 125  
 146 Pro Gly Thr Glu Gln Thr Glu Ala Val Gly Leu Ser Ser Lys Pro  
 147 130 135 140  
 150 Ala Thr Pro Lys Thr Thr Pro Pro Ser Ser Pro Pro Pro Thr Ala  
 151 145 150 155 160  
 154 Val Ser Pro Glu Phe Ala Tyr Val Pro Ala Asp Pro Ala Gln Leu Ala  
 155 165 170 175  
 158 Ala Gln Met Leu Gly Lys Val Ser Ser Ile His Ser Asp Gln Ser Asp  
 159 180 185 190  
 162 Val Leu Met Val Asp Val Ala Thr Ser Met Pro Val Val Ile Lys Glu  
 163 195 200 205  
 166 Val Pro Ser Ser Glu Ala Ala Glu Asp Val Met Val Ala Ala Pro Leu

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171	225	230	235	240
174	Val His Val Asp Leu Gly Ser Gln Pro	Lys Glu Asn Glu Ala	Glu Pro	
175	245	250	255	
178	Ser Thr Ala Ser Ser Val Pro Leu Gln Asp	Glu Gln Glu Pro	Pro Ala	
179	260	265	270	
182	Tyr Asp Gln Ala Pro Glu Val Thr	Leu Gln Ala Asp	Ile Glu Val Met	
183	275	280	285	
186	Ser Thr Val His Ile Ser Ser Val Tyr Asn Asp	Val Pro Val	Thr Glu	
187	290	295	300	
190	Gly Val Val Tyr Ile Glu Gln Leu Pro	Glu Gln Ile Val Ile	Pro Phe	
191	305	310	315	320
194	Thr Asp Gln Val Ala Cys Leu Lys	Glu Asn Glu Gln Ser	Lys Glu Asn	
195	325	330	335	
198	Glu Gln Ser Pro Arg Val Ser Pro	Lys Ser Val Val	Glu Lys Thr Thr	
199	340	345	350	
202	Ser Gly Met Ser Lys Lys Ser Val	Glu Ser Val Lys	Leu Ala Gln Leu	
203	355	360	365	
206	Glu Glu Asn Ala Lys Tyr Ser Ser Val	Tyr Met Glu Ala	Glu Ala Thr	
207	370	375	380	
210	Ala Leu Leu Ser Asp Thr Ser Leu Lys	Gly Gln Pro	Glu Val Pro Ala	
211	385	390	395	400
214	Gln Leu Leu Asp Ala Glu Gly Ala Ile	Lys Ile Gly Ser	Glu Lys Ser	
215	405	410	415	
218	Leu His Leu Glu Val Glu Val Thr	Ser Ile Val Ser Asp	Asn Thr Gly	
219	420	425	430	
222	Gln Glu Glu Ser Gly Glu Asn Ser Val	Pro Gln Glu Met	Glu Gly Arg	
223	435	440	445	
226	Pro Val Leu Ser Gly Glu Ala Ala	Glu Ala Val His	Ser Gly Thr Ser	
227	450	455	460	
230	Val Lys Ser Ser Ser Gly Pro Phe	Pro Pro Ala Pro	Glu Gly Leu Thr	
231	465	470	475	480
234	Ala Pro Glu Ile Glu Pro Glu Gly	Glu Ser Thr Ala	Glu Gly Leu Met	
235	485	490	495	
238	Lys Pro Ala Met Ala Thr Ser Glu Arg	Gly Gln Pro Pro	Pro Cys Ser	
239	500	505	510	
242	Asn Met Trp Thr Leu Tyr Cys Leu	Thr Asp Lys Asn Gln	Gln Gly His	
243	515	520	525	
246	Pro Ser Pro Pro Pro Ala Pro	Gly Pro Phe Pro	Gln Ala Thr Leu Tyr	
247	530	535	540	
250	Leu Pro Asn Pro Lys Asp Pro	Gln Phe Gln Gln His	Pro Pro Lys Val	
251	545	550	555	560
254	Thr Phe Pro Thr Tyr Val Met Gly	Asp Thr Lys Lys	Thr Ser Ala Pro	
255	565	570	575	
258	Pro Phe Ile Leu Val Gly Ser Asn Val	Gln Glu Ala Gln	Gly Trp Lys	
259	580	585	590	
262	Pro Leu Pro Gly His Ala Val Val	Ser Gln Ser Asp	Val Leu Arg Tyr	
263	595	600	605	

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266 Val Ala Met Gln Val Pro Ile Ala Val Pro Ala Asp Glu Lys Tyr Gln  
 267 610 615 620  
 270 Lys His Thr Leu Ser Pro Gln Asn Ala Asn Pro Pro Ser Gly Gln Asp  
 271 625 630 635 640  
 274 Val Pro Arg Pro Lys Ser Pro Val Phe Leu Ser Val Ala Phe Pro Val  
 275 645 650 655  
 278 Glu Asp Val Ala Lys Lys Ser Ser Asp Ser Gly Asp Lys Cys Ala Pro  
 279 660 665 670  
 282 Phe Gly Ser Tyr Gly Ile Ala Gly Glu Val Thr Val Thr Ala His  
 283 675 680 685  
 286 Lys Arg Arg Lys Ala Glu Thr Glu Asn  
 287 690 695  
 290 <210> SEQ ID NO: 3  
 291 <211> LENGTH: 350  
 292 <212> TYPE: PRT  
 293 <213> ORGANISM: Homo sapiens  
 295 <400> SEQUENCE: 3  
 297 Met Lys Pro Leu Val Leu Leu Val Ala Leu Leu Leu Trp Pro Ser Ser  
 298 1 5 10 15  
 301 Val Pro Ala Tyr Pro Ser Ile Thr Val Thr Pro Asp Glu Glu Gln Asn  
 302 20 25 30  
 305 Leu Asn His Tyr Ile Gln Val Leu Glu Asn Leu Val Arg Ser Val Pro  
 306 35 40 45  
 309 Ser Gly Glu Pro Gly Arg Glu Lys Lys Ser Asn Ser Pro Lys His Val  
 310 50 55 60  
 313 Tyr Ser Ile Ala Ser Lys Gly Ser Lys Phe Lys Glu Leu Val Thr His  
 314 65 70 75 80  
 317 Gly Asp Ala Ser Thr Glu Asn Asp Val Leu Thr Asn Pro Ile Ser Glu  
 318 85 90 95  
 321 Glu Thr Thr Phe Pro Thr Gly Gly Phe Thr Pro Glu Ile Gly Lys  
 322 100 105 110  
 325 Lys Lys His Thr Glu Ser Thr Pro Phe Trp Ser Ile Lys Pro Asn Asn  
 326 115 120 125  
 329 Val Ser Ile Val Leu His Ala Glu Glu Pro Tyr Ile Glu Asn Glu Glu  
 330 130 135 140  
 333 Pro Glu Pro Glu Pro Glu Pro Ala Ala Lys Gln Thr Glu Ala Pro Arg  
 334 145 150 155 160  
 337 Met Leu Pro Val Val Thr Glu Ser Ser Thr Ser Pro Tyr Val Thr Ser  
 338 165 170 175  
 341 Tyr Lys Ser Pro Val Thr Thr Leu Asp Lys Ser Thr Gly Ile Glu Ile  
 342 180 185 190  
 345 Tyr Thr Glu Ser Glu Asp Val Pro Gln Leu Ser Gly Glu Thr Ala Ile  
 346 195 200 205  
 349 Glu Lys Pro Glu Glu Phe Gly Lys His Pro Glu Ser Trp Asn Asn Asp  
 350 210 215 220  
 353 Asp Ile Leu Lys Lys Ile Leu Asp Ile Asn Ser Gln Val Gln Gln Ala  
 354 225 230 235 240  
 357 Leu Leu Ser Asp Thr Ser Asn Pro Ala Tyr Arg Glu Asp Ile Glu Ala  
 358 245 250 255

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361 Ser Lys Asp His Leu Lys Pro Ser Leu Ala Leu Ala Ala Ala Glu  
362 260 265 270  
365 His Lys Leu Lys Thr Met Tyr Lys Ser Gln Leu Leu Pro Val Gly Arg  
366 275 280 285  
369 Thr Ser Asn Lys Ile Asp Asp Ile Val Thr Val Ile Asn Met Leu Cys  
370 290 295 300  
373 Asn Ser Arg Ser Lys Leu Tyr Glu Tyr Leu Asp Ile Lys Cys Val Pro  
374 305 310 315 320  
377 Pro Glu Met Arg Glu Lys Ala Ala Thr Val Phe Asn Thr Leu Lys Asn  
378 325 330 335  
381 Met Cys Arg Ser Arg Arg Val Thr Ala Leu Leu Lys Val Tyr  
382 340 345 350  
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386 <211> LENGTH: 294  
387 <212> TYPE: PRT  
388 <213> ORGANISM: Homo sapiens  
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396 Gly Trp Leu Leu Leu Ala Gly Leu Gln Ser Ala Arg Gly Thr Asn Val  
397 20 25 30  
400 Thr Ala Ala Val Gln Asp Ala Gly Leu Ala His Glu Gly Glu Gly Glu  
401 35 40 45  
404 Glu Glu Thr Glu Asn Asn Asp Ser Glu Thr Ala Glu Asn Tyr Ala Pro  
405 50 55 60  
408 Pro Glu Thr Glu Asp Val Ser Asn Arg Asn Val Val Lys Glu Val Glu  
409 65 70 75 80  
412 Phe Gly Met Cys Thr Val Thr Cys Gly Ile Gly Val Arg Glu Val Ile  
413 85 90 95  
416 Leu Thr Asn Gly Cys Pro Gly Gly Glu Ser Lys Cys Val Val Arg Val  
417 100 105 110  
420 Glu Glu Cys Arg Gly Pro Thr Asp Cys Gly Trp Gly Lys Pro Ile Ser  
421 115 120 125  
424 Glu Ser Leu Glu Ser Val Arg Leu Ala Cys Ile His Thr Ser Pro Leu  
425 130 135 140  
428 Asn Arg Phe Lys Tyr Met Trp Lys Leu Leu Arg Gln Asp Gln Gln Ser  
429 145 150 155 160  
432 Ile Ile Leu Val Asn Asp Ser Ala Ile Leu Glu Val Arg Lys Glu Ser  
433 165 170 175  
436 His Pro Leu Ala Phe Glu Cys Asp Thr Leu Asp Asn Asn Glu Ile Val  
437 180 185 190  
440 Ala Thr Ile Lys Phe Thr Val Tyr Thr Ser Ser Glu Leu Gln Met Arg  
441 195 200 205  
444 Arg Ser Ser Leu Pro Ala Thr Asp Ala Ala Leu Ile Phe Val Leu Thr  
445 210 215 220  
448 Ile Gly Val Ile Ile Cys Val Phe Ile Ile Phe Leu Leu Ile Phe Ile  
449 225 230 235 240  
452 Ile Ile Asn Trp Ala Ala Val Lys Ala Phe Trp Gly Ala Lys Ala Ser  
453 245 250 255

**VERIFICATION SUMMARY**

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TIME: 15:22:19

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L:15 M:271 C: Current Filing Date differs, Replaced Current Filing Date